ELEVENTH ANNUAL REPORT 2002

CREUTZFELDT-JAKOB DISEASE SURVEILLANCE IN THE UK

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SUMMARY

The national surveillance programme for Creutzfeldt-Jakob disease (CJD) in the UK was initiated in May 1990. In 1999, the National CJD Surveillance Unit (NCJDSU) became a WHO Collaborative Centre for Reference and Research on the surveillance and epidemiology of human transmissible encephalopathies (TSEs). In September 2001 the National Care Team was formed, comprising 2 care coordinators, a neurologist (part-time) and a secretary. The National Care Team is based within the NCJDSU and was formed in response to concerns regarding the care of CJD patients.

The information provided in this eleventh report continues to provide evidence of a high level of case ascertainment. Detailed clinical and epidemiological information has been obtained for the great majority of patients. The methodology of the case-control study for risk factors of CJD has been altered in an attempt to improve the quality of information obtained. The post mortem rate for patients with suspected CJD is high, although there is recent evidence that the autopsy rates have declined, in line with autopsy rates in the UK generally following the Alder Hey Inquiry. This is reflected in the reduced number of brain specimens examined in the neuropathology laboratory this year, particularly for variant CJD.

In 1990-2002 mortality rates from sporadic CJD in England, Scotland, Wales and Northern Ireland were, respectively, 0.81, 0.84, 1.08 and 0.52/million/year. The difference between the rates in each country is not statistically significant ($p>0.2$). These rates are comparable to those observed in other countries in Europe and elsewhere in the world, including countries which are free of BSE. There was some variation in the observed mortality rates between the different regions within the UK but this variation is not statistically significant ($p>0.2$). The highest and lowest mortality rates from sporadic CJD were observed in the South West (SMR=131) and Northern Ireland (SMR=76).

Up to 31 January 2003, there have been 122 deaths from definite or probable variant CJD (vCJD) in the UK. Of these, 94 were confirmed neuropathologically with one additional case awaiting neuropathological confirmation. The clinical, neuropathological and epidemiological features of these cases of vCJD are remarkably uniform and consistent with our previous descriptions. Analysis of the incidence of vCJD onsets and deaths from January 1994 to December 2002 shows evidence that the epidemic may have reached, or be reaching, a peak. While this is an encouraging finding, it is premature to conclude that the incidence of vCJD may not increase again, particularly if different genetic subgroups are found to be affected.

Risk factors for the development of vCJD include age, residence in the UK and methionine homozygosity at codon 129 of the prion protein gene - 113 cases of vCJD with available genetic analysis have all been methionine homozygotes. The incidence of vCJD across the UK continues to show a "North-South" difference (though slightly less than that reported last year), with a higher incidence being maintained in the North of the UK. The underlying reason for this finding is not clear and further investigations are required to investigate the possible explanation. The only statistically significant geographic cluster of vCJD cases in the UK is in Leicestershire. All geographically associated cases of vCJD are subject to a protocol for detailed investigation, which involves the NCJDSU, colleagues at CDSC and local public health physicians.

The activities of the NCJDSU are strengthened by collaboration in other surveillance projects, including the Transfusion Medicine Epidemiology Review and the study of Progressive Intellectual and Neurological Deterioration in Children. The collaboration of our colleagues in these projects is greatly appreciated. The success of the National CJD Surveillance Project continues to depend on the extraordinary level of co-operation from the neuroscience community and other medical and paramedical staff throughout the UK. We are particularly grateful to the relatives of patients for their help with this study.

Section

2

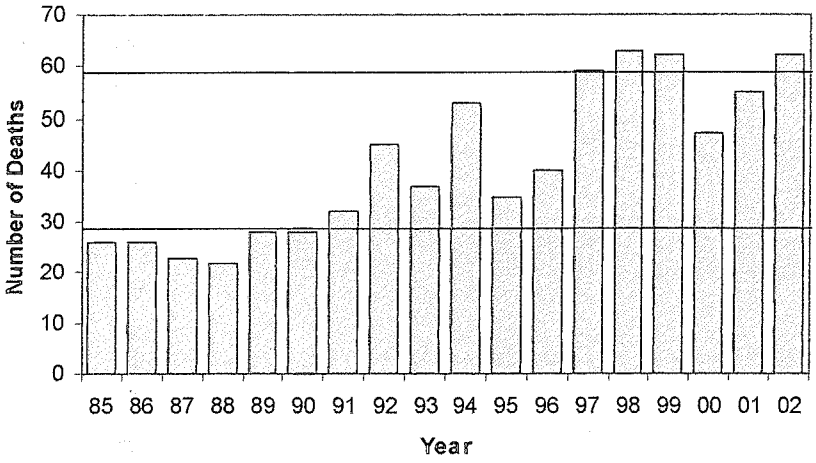
CLINICAL SURVEILLANCE

The national surveillance of CJD in the UK was initiated in May 1990 in response to a recommendation in the Report of the Working Party on Bovine Spongiform Encephalopathy (Southwood Committee). The surveillance is funded by the Department of Health and by the Scottish Executive Health Department. The initial aim of the NCJDSU was to identify any change in the pattern of CJD that might be attributable to the emergence of bovine spongiform encephalopathy (BSE). Such a change was recognised in 1996 when vCJD was first described. The NCJDSU now aims to monitor characteristics of CJD, specifically sporadic CJD and variant CJD, to identify trends in incidence rates and to study risk factors for the development of disease. This report documents the findings from the NCJDSU (UK) in relation to cases of sporadic, familial and iatrogenic CJD referred up to 31st December 2002 (with data ascertained up to 31st January 2003) and cases of vCJD referred up to 31st January 2003. Data from England and Wales include retrospective data from 1970; for Scotland and Northern Ireland, retrospective data are available from 1985.

2.1 Sporadic Creutzfeldt-Jakob Disease

Between 1st January 1970 and 31st December 2002, 1022 cases of sporadic CJD were identified in the UK, of which 11 cases were still alive on 31st December 2002. Two further cases were identified in Jersey but they were not included in the following UK analyses. Of these UK cases, 791 (77%) were classified as definite cases with the remainder classed as probable. Figure 1a shows the number of deaths each year from sporadic CJD for the UK between 1985 and 2002, Figure 1b shows similar data for England and Wales between 1970 and 2002 and Figure 1c shows the number of deaths from sporadic CJD in Scotland and Northern Ireland between 1985 and 2002. In England and Wales the number of deaths identified each year has increased from an average of about 10 per year at the beginning of the 1970s, to about 40 per year in the 1990s. A similar phenomenon has been observed in other European countries and this probably largely reflects improved case ascertainment. Over the shorter time period for which data are available for Scotland and Northern Ireland there is no clear secular trend. Over the period 1990-2002 the average crude annual mortality rates from sporadic CJD per million population were 0.81 in England, 1.08 in Wales, 0.84 in Scotland and 0.52 in Northern Ireland, as shown in Table 1. When account is taken of age and sex, the variation in recorded mortality between the different countries is not statistically significant ($p > 0.2$).

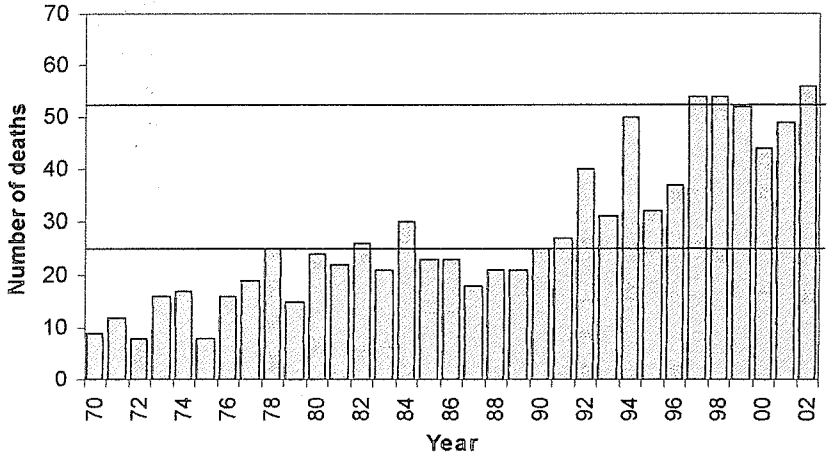
Figure 1a Deaths from sporadic CJD, UK, 1985-2002



Note: The horizontal lines indicate the number of deaths equivalent to crude mortality rates of 0.5 and 1 per million per year

Data for 2002 may be incomplete

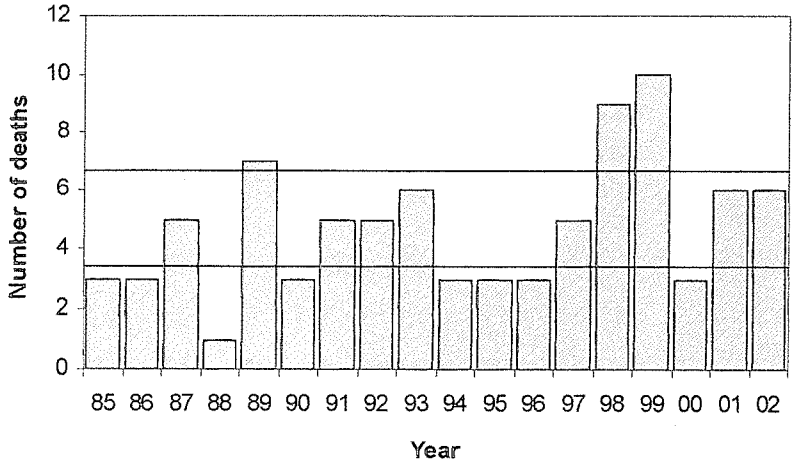
Figure 1b Deaths from sporadic CJD, England and Wales, 1970-2002



Note: The horizontal lines indicate the number of deaths equivalent to crude mortality rates of 0.5 and 1 per million per year

Data for 2002 may be incomplete

Figure 1c Deaths from sporadic CJD, Scotland and Northern Ireland 1985-2002 (please note different scale from Figs 1a and 1b)



Note: The horizontal lines indicate the number of deaths equivalent to crude mortality rates of 0.5 and 1 per million per year

Data for 2002 may be incomplete

Table 1 Deaths from definite and probable sporadic CJD by region and county of death: 1 January 1990 to 31st December 2002

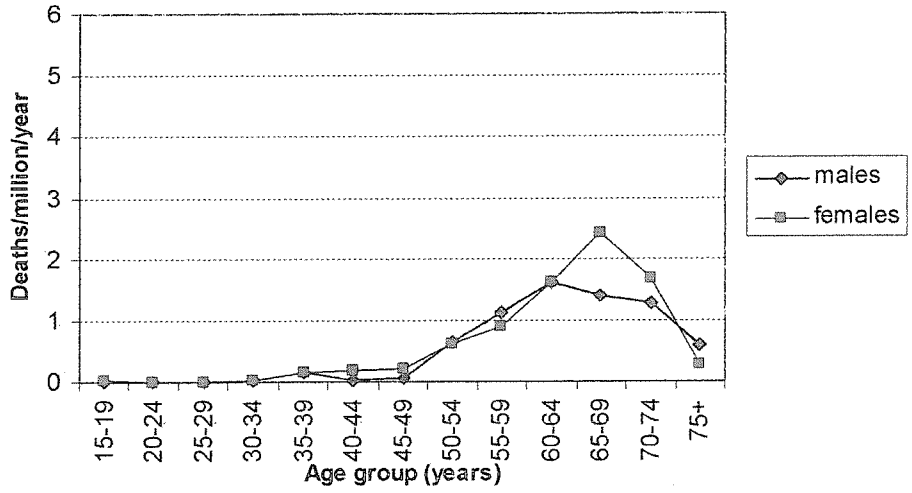
	No of cases	Total no (mortality rate/million/ annum)*
ENGLAND		
North		
Cleveland	2	
Cumbria	9	
Durham	4	32 (0.79)
Northumberland	3	
Tyne & Wear	14	
East Midlands		
Derbyshire	8	
Leicestershire	12	
Lincolnshire	7	38 (0.71)
Northamptonshire	2	
Nottinghamshire	9	
South East		
Bedfordshire	5	
Berkshire	7	
Buckinghamshire	4	
East Sussex	10	
Essex	23	
Greater London	56	173 (0.74)
Hampshire	16	
Hertfordshire	8	
Isle of Wight	1	
Kent	14	
Oxfordshire	8	
Surrey	9	
West Sussex	12	
North West		
Cheshire	8	
Greater Manchester	25	68 (0.82)
Lancashire	17	
Merseyside	18	
WALES		
Clwyd	6	
Dyfed	4	
Gwent	5	
Gwynedd	9	
Mid Glamorgan	9	
Powys	2	
South Glamorgan	2	
West Glamorgan	4	
TOTAL FOR WALES		**41 (1.08)**
NORTHERN IRELAND	11	**11 (0.52)**

	No of cases	Total no (mortality rate/million/ annum)*
ENGLAND		
Yorkshire & Humberside		
Humberside	6	
NorthYorkshire	11	
South Yorkshire	16	52 (0.80)
West Yorkshire	19	
East Anglia		
Cambridgeshire	6	
Norfolk	10	28 (1.02)
Suffolk	12	
South West		
Avon	13	
Cornwall	7	
Devon	13	
Dorset	15	73 (1.17)
Gloucestershire	7	
Somerset	8	
Wiltshire	10	
West Midlands		
Hereford & Worcs.	4	
Shropshire	4	
Staffordshire	12	46 (0.67)
Warwickshire	2	
West Mids (Met)	24	
TOTAL FOR ENGLAND		**510 (0.81)**
SCOTLAND		
Borders	2	
Central	5	
Dumfries & Galloway	0	
Fife	2	
Grampian	7	
Highland	1	
Lothian	15	
Strathclyde	20	
Tayside	2	
Islands (Shetland)	2	
Islands (Orkney)	0	
Islands (Western Isles)	0	
TOTAL FOR SCOTLAND		**56 (0.84)**

* based on 1994 population by region (as published in ONS Regional Trends, 1996 edition) over the 13-year period of the study.

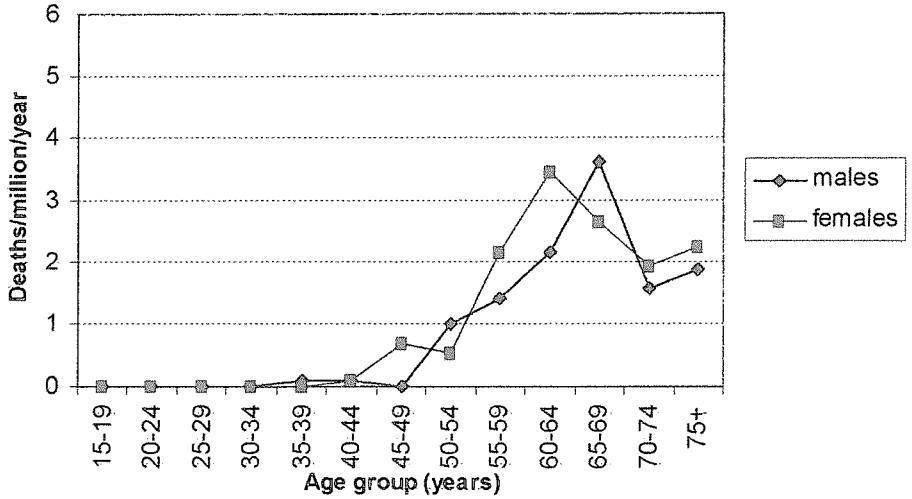
Figure 2a, 2b and 2c shows average annual age- and sex-specific mortality rates over the time periods 1970-89, 1990-95 and 1996-02, respectively. The median ages of cases at death during these time periods were 64, 66 and 67 years, respectively. In all three time periods, the mortality rates below 40 years of age were extremely low (< 0.2/million/year). Thereafter, in all three periods, the mortality rates increased until the ages of 60-74 years and then declined. The decline in mortality rate in the older age groups was more marked prior to 1990. The mortality rate in those over 75 years of age was 3.04 cases/million/year in 1996-02, 2.11 cases/million/year in 1990-95 and 0.38 cases/million/year in 1970-89. This might be explained by an increase in case ascertainment in the elderly over time. Another feature over the time period studied is a change in the sex ratio, affecting particularly older cases, which was examined in last year's annual report. The explanation for this trend remains unclear.

Figure 2a Age- and sex-specific mortality rates from sporadic CJD in the UK 1970-1989
(note: from 1970-1984 only England & Wales, thereafter UK)



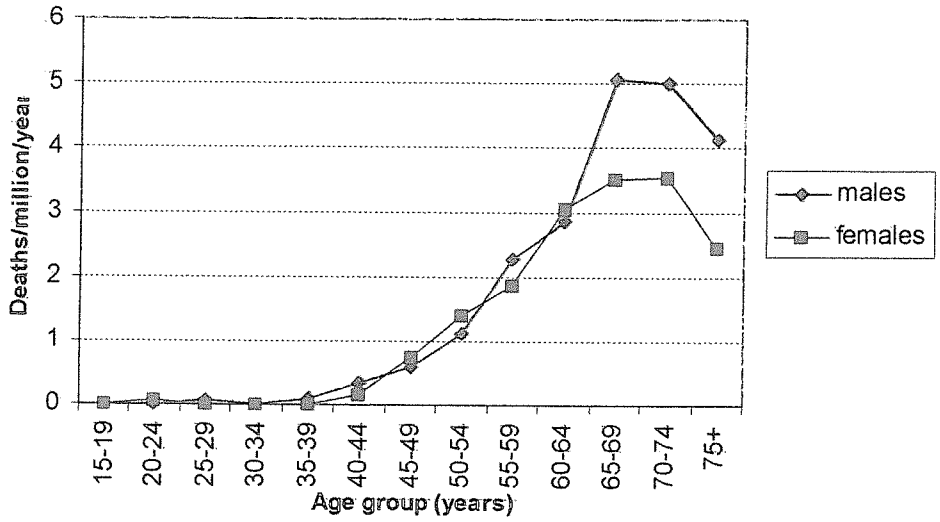
Mortality rates calculated using 1981 Census for GB and 1991 Census for NI

Figure 2b Age- and sex-specific mortality rates from sporadic CJD in the UK 1990-1995



Mortality rates calculated using 1991 Census

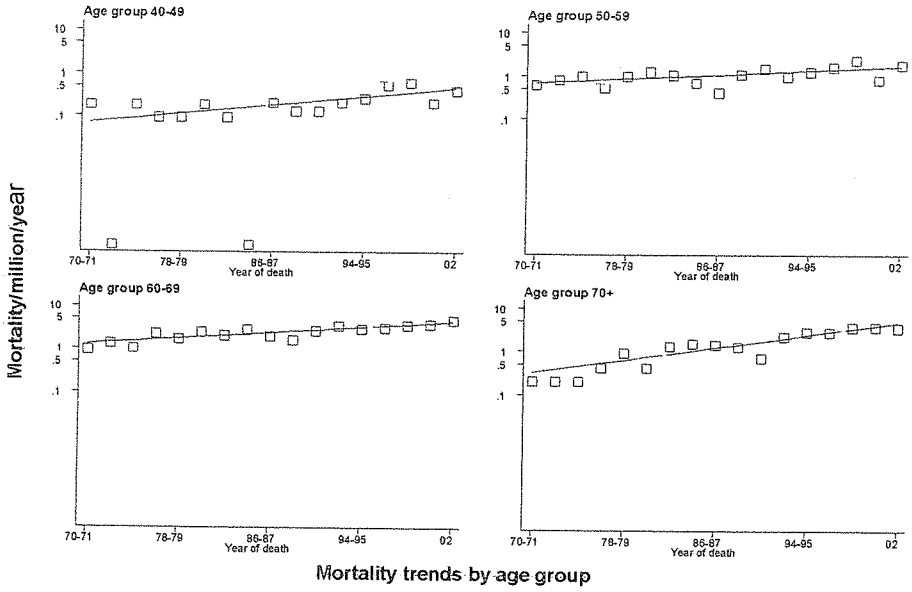
Figure 2c Age- and sex-specific mortality rates from sporadic CJD in the UK 1996-2002



Mortality rates calculated using 1991 Census

An analysis of age specific trends from 1970 to 2002 (Figure 3) shows there has been an increase in recorded mortality over time in all age groups, but that the greatest relative increase has occurred in those aged 70 years and above. Currently the mortality rate in this age group is similar to that in the age group 60-69 years. The temporal increases in mortality are statistically significant in all age groups ($p \leq 0.001$). These observations are consistent with improved case ascertainment in all ages, but with the greatest increase occurring in the elderly.

Figure 3 Trends in mortality from sporadic CJD by age: 1970-2002



Mortality rates calculated using 1991 Census

Table 2 presents, by 2-year period, the numbers of deaths underlying these trends. These data emphasise the very small numbers of cases of sporadic CJD occurring in individuals aged <50 years. They show clearly the substantial increase in the numbers of deaths identified among those aged 70 years and above, from around one per year in England and Wales in the early 1970s to around 20 per year in the UK in recent years.

Table 2 Cases of sporadic CJD in England and Wales (from 1970) and the UK (from 1985) by two year period

Age at death (years)	Year of death																	
	70-71	72-73	74-75	76-77	78-79	80-81	82-83	84-85[1]	86-87	88-89	90-91	92-93	94-95	96-97	98-99	00-01	02[2]	**Total[2]**
10-19	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	**1 (0)**
20-29	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	**2 (0)**
30-39	1	0	0	2	2	1	1	4	1	0	1	0	0	0	1	0	0	**14 (0)**
40-49	2	0	2	1	1	2	1	0	3	2	2	3	4	8	9	3	3 (1)	**46 (1)**
50-59	7	9	11	6	11	14	12	8	5	13	18	12	15	20	28	10	11 (2)	**210 (2)**
60-69	9	13	10	22	17	24	20	28	22	18	30	39	32	35	40	42	26 (4)	**427 (4)**
70 +	2	2	2	4	9	4	13	16	18	16	9	28	37	35	46	47	22 (4)	**310 (4)**
Total	**21**	**24**	**25**	**35**	**40**	**46**	**47**	**56**	**49**	**50[3]**	**60**	**82**	**88**	**99**	**125**	**102**	**62 (11)**	**1011[3] (11)**

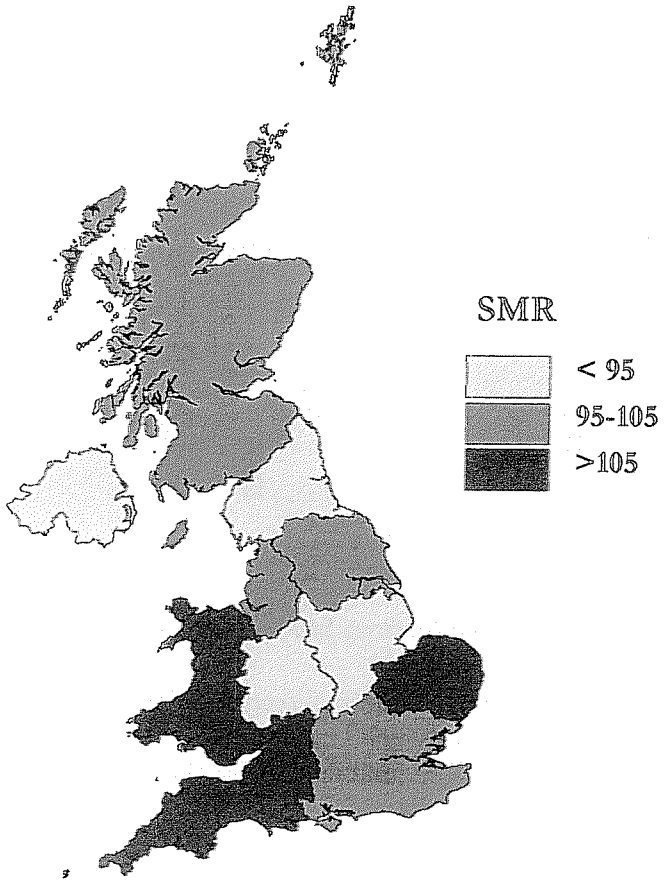
[1] Up to 1984, cases from England and Wales only. From 1985 onwards, cases from Scotland and Northern Ireland are included

[2] Deaths up to 31st December 2002. Numbers in parentheses indicate additional cases alive on 31st December 2002. Data for 2002 not yet complete.

[3] Total includes one case whose age at death was unknown

Age- and sex- standardised mortality ratios (SMRs) for the 11 standard regions of the UK for the period 1st January 1990 to 31st December 2002 were calculated (Figure 4). After adjusting for the age/sex distribution of the population, the variation in mortality rates between the different regions is not statistically significant ($p>0.2$). Regions of relatively high mortality are South West (SMR=131), Wales (SMR=124) and East Anglia (SMR=121). Low mortality rates were observed in Northern Ireland (SMR=76), West Midlands (SMR=82) and East Midlands (SMR=88). The SMRs for the other five regions all lay between 93 and 103. The highest SMR (131 in South West) arose from 73 cases observed compared with 56 expected, an excess of about one and a half cases every year compared to the national average. In Wales and East Anglia the total numbers of excess cases were approximately 8 and 5 respectively.

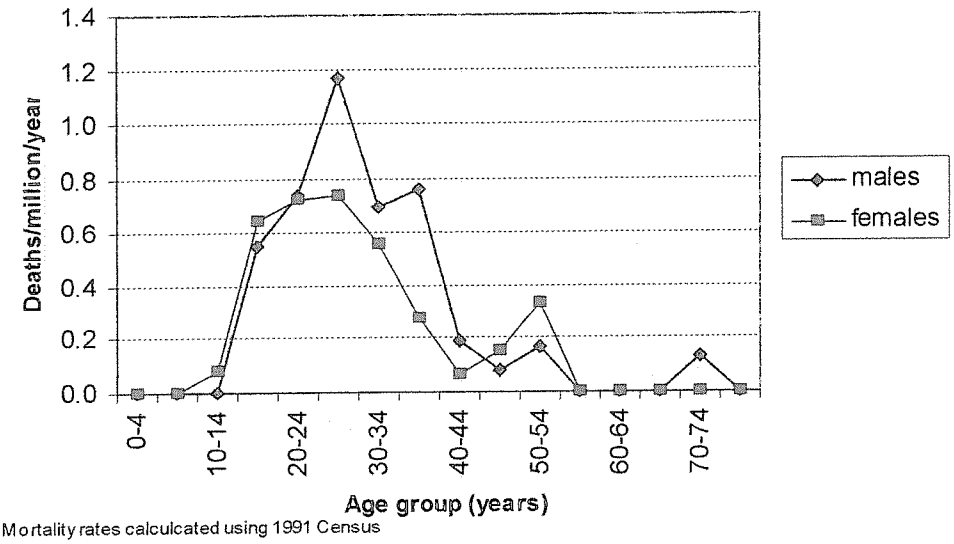
Figure 4 **Standardised mortality ratios (SMRs) by standard region, UK 1 January 1990 - 31 December 2002**



2.2 Variant Creutzfeldt-Jakob Disease

Up to 31st January 2003, 130 cases of definite or probable vCJD had been identified in the UK (94 definite, one probable awaiting neuropathological confirmation, 27 probable who did not undergo post mortem and 8 probable cases still alive). Fifty-eight (45%) of the 130 cases were women. The median age at onset of disease was 26 years and the median age at death 28 years (compared with 67 years for the median age at death for sporadic CJD). The youngest case was aged 12 years at onset while the oldest case was aged 74 years. The age- and sex-specific mortality rates for vCJD over the time period 1 May 1995 to 31 January 2003 are shown in Figure 5. The median duration of illness from the onset of first symptoms to death was 14 months (range 6-39). The comparable duration of illness for cases of sporadic CJD was 4 months (range 1 to 74) during the period 1990-2002.

Figure 5 **Age- and sex-specific mortality rates from vCJD in the UK 1 May 1995 - 31st January 2003**



Mortality rates calculcated using 1991 Census

Incidence of vCJD onsets and deaths from January 1994 - December 2002

Each quarter data on diagnosed cases of variant Creutzfeldt-Jakob disease (vCJD) in the UK are reviewed in order to investigate trends in the underlying rate at which disease onsets and deaths are occurring. The following analysis reviews the data to the end of December 2002 by which time there was a total of 129 cases of which 121 had died. The data were grouped into quarters and modelled using Poisson regression. Models were fitted with either exponential or quadratic-exponential time parameters.

Results for Onsets

Since vCJD was first identified, the average interval between the onset of first symptoms and the diagnosis of vCJD has decreased. The mean delay to diagnosis is estimated to have reduced by an average of 5% per year and is currently estimated at 9 months.

Figure 6a shows the observed and expected number of onsets and the estimated trend (assuming exponential growth) with 95% confidence intervals (CIs). This model estimates that

the number of onsets have increased by 13% per year since 1994 (95%CI 6-23). The estimated incidence in the current quarter is 6.8 cases per quarter.

A separate model including a quadratic trend showed significant evidence of a better fit (p=0.012 for quadratic term). Figure 6b shows the quadratic model fitted to the data. The quadratic model is consistent with an epidemic that has reached a peak and this model gives an estimated current incidence of 3.2 onsets per quarter. Based on onsets there is some evidence that the rate at which incidence has been increasing has slowed, and that the epidemic may have reached or be close to reaching a peak.

Figure 6a: Observed (-o-) and expected (-e-) quarterly incidence of vCJD onsets Fitted exponential trend* (__) is given with its 95% confidence limits (...)

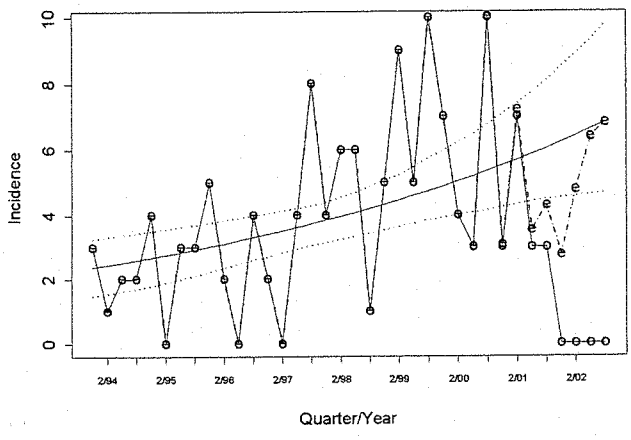
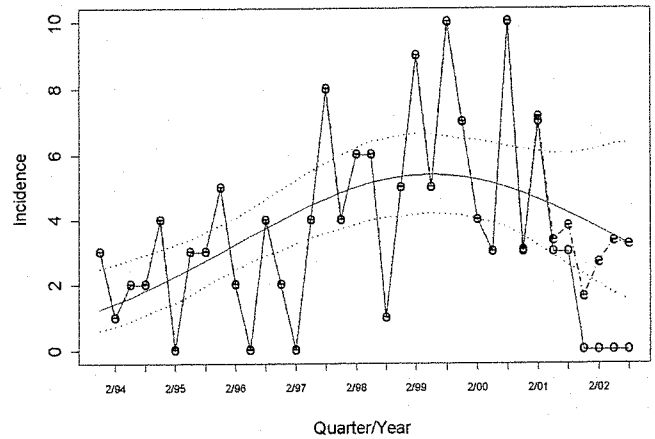


Figure 6b: Observed (-o-) and expected (-e-) quarterly incidence of vCJD onsets Fitted quadratic trend* (__) is given with its 95% confidence limits (...)



* includes adjustment for delay from onset to diagnosis

Predicted onsets by the end of December 2002

Based upon the exponential model, the estimated total number of cases with onset by December 2002 is 152 (129 already diagnosed +23 not yet diagnosed) with a 95% CI of 144 to 163. Based on the quadratic model, however, the estimated total number of cases with onset by December 2002 is 141 (129 already diagnosed + 12 not yet diagnosed) with a 95% CI of 135 to 151.

Assessment of Predictions made at the end of December 2001

At the end of 2001 the exponential model predicted 140 onsets would have occurred by the end of 2001 compared to 135 with the quadratic model. The total onsets observed so far is 129 and this number is unlikely to increase much. Thus the prediction from the quadratic model (135) is closer to the observed data than the prediction from the simpler (linear) exponential model (140). The prediction interval for the exponential model was 131-154 so the current observed total is outside the prediction interval for the exponential model, this may change if a few more cases are diagnosed with onsets in 2001.

Results for Deaths

All deaths combined

Figure 7a shows the observed numbers of deaths by quarter with the exponential model fitted. The annual number of deaths have increased by an estimated 15% per year, (95% CI, 6-25). Based on this model the estimate of the current quarterly incidence of deaths is 6.3.

The model which included a quadratic term gave a significantly better fit (p=0.005) indicating a departure from a constant exponential increase. Figure 7b shows the data with the fitted quadratic trend. This model estimates that the current quarterly incidence of deaths is 3.9 and shows that the previously seen rate of increase has slowed and that the epidemic may have reached a peak.

Figure 7a Observed (-o-) quarterly incidence of vCJD deaths
Fitted underlying trend (__) is given with its 95% confidence limits (...)

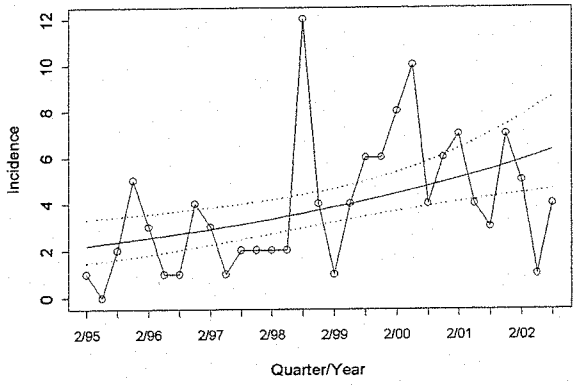
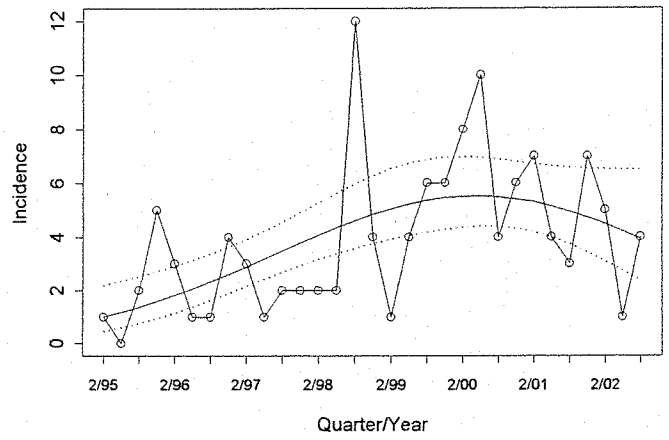


Figure 7b **Observed (-o-) quarterly incidence of vCJD deaths Fitted underlying quadratic trend (__) is given with its 95% confidence limits (...)**



Prediction for deaths in the next 12 months

From the model with an increasing exponential trend, the predicted total number of deaths from January 2003 to December 2003 is 28 with a 95% prediction interval of 16 to 40. However the model with the quadratic term predicts a total of 13 deaths in the next 12 months with a 95% prediction interval of 5 to 23.

Assessment of Predictions made at the end of December 2001

The exponential model predicted 32 deaths in 2002 (95% prediction interval 19-47). The observed number of deaths was 17 which lies outside this 95% prediction interval. The quadratic model performed better, predicting 20 deaths (95% prediction interval 10-32).

Deaths by cohort

The average age at death has so far remained stable, contrary to what may be expected given that most exposure to BSE ceased in the early 1990s. This finding is consistent, for example, with different age-specific susceptibility or exposure or possibly different incubation periods by age. To examine this in more detail the epidemic curves (quadratic model) are compared in those born before 1970 with those born in the 1970s and the 1980s. This analysis identified evidence of differences by cohort in the shape of the fitted curves (p=0.006). The main difference is due to the fact that in the 1980's cohort no deaths were seen prior to 1999. Figure 8 shows the fitted quadratic epidemic curves for each of the cohorts, in the pre-1970s cohort the curve shows a shallower rise and fall than in the other cohorts. Note that in the 1980s cohort the confidence intervals are very wide due to small numbers. Also the eight cases still alive at the end of 2002 were all born in the 1980s so it is unclear whether or not the 1980s cohort is still showing an exponentially increasing trend.

Figure 8a Quarterly incidence of vCJD deaths (born pre 1970 cohort)
Fitted underlying quadratic trend is given with its 95% confidence limits

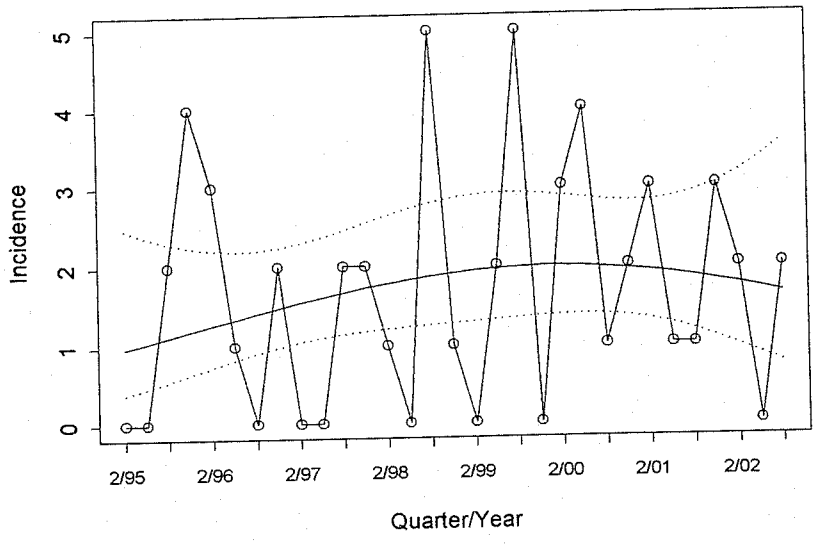


Figure 8b Quarterly incidence of vCJD deaths (born 1970s cohort)
Fitted underlying quadratic trend is given with its 95% confidence limits

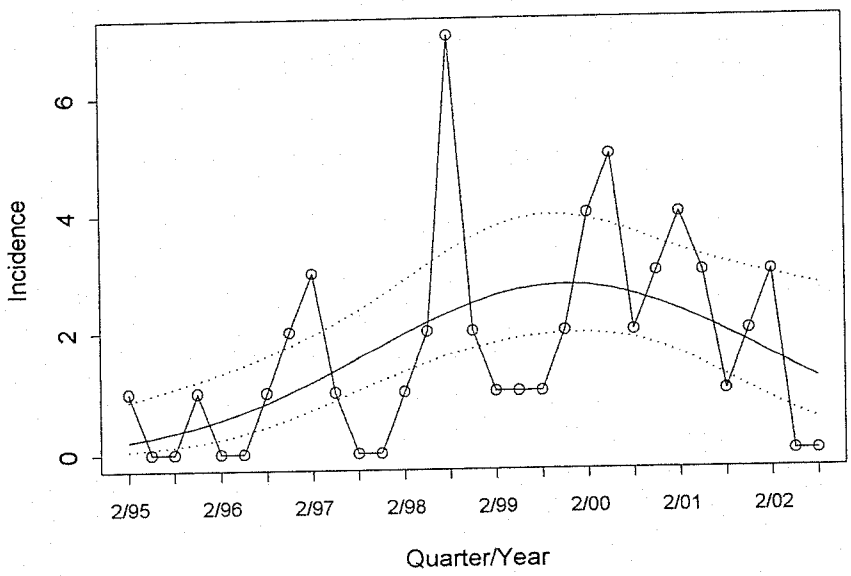
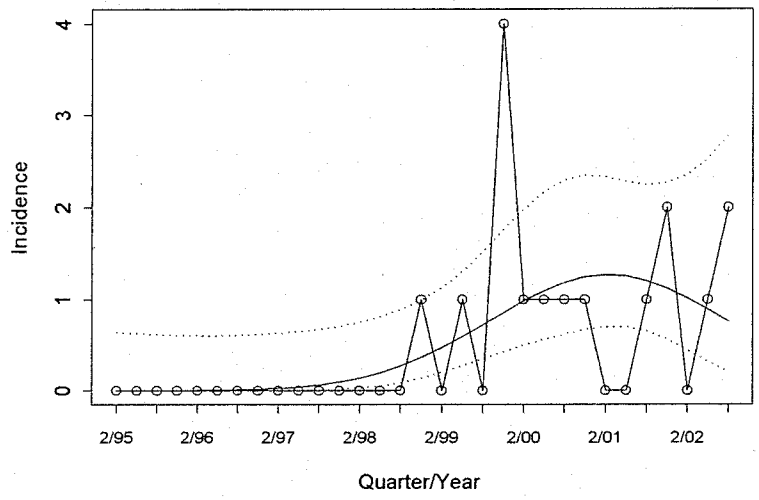


Figure 8c **Quarterly incidence of vCJD deaths (born 1980s cohort)**
Fitted underlying quadratic trend is given with its 95% confidence limits



Summary

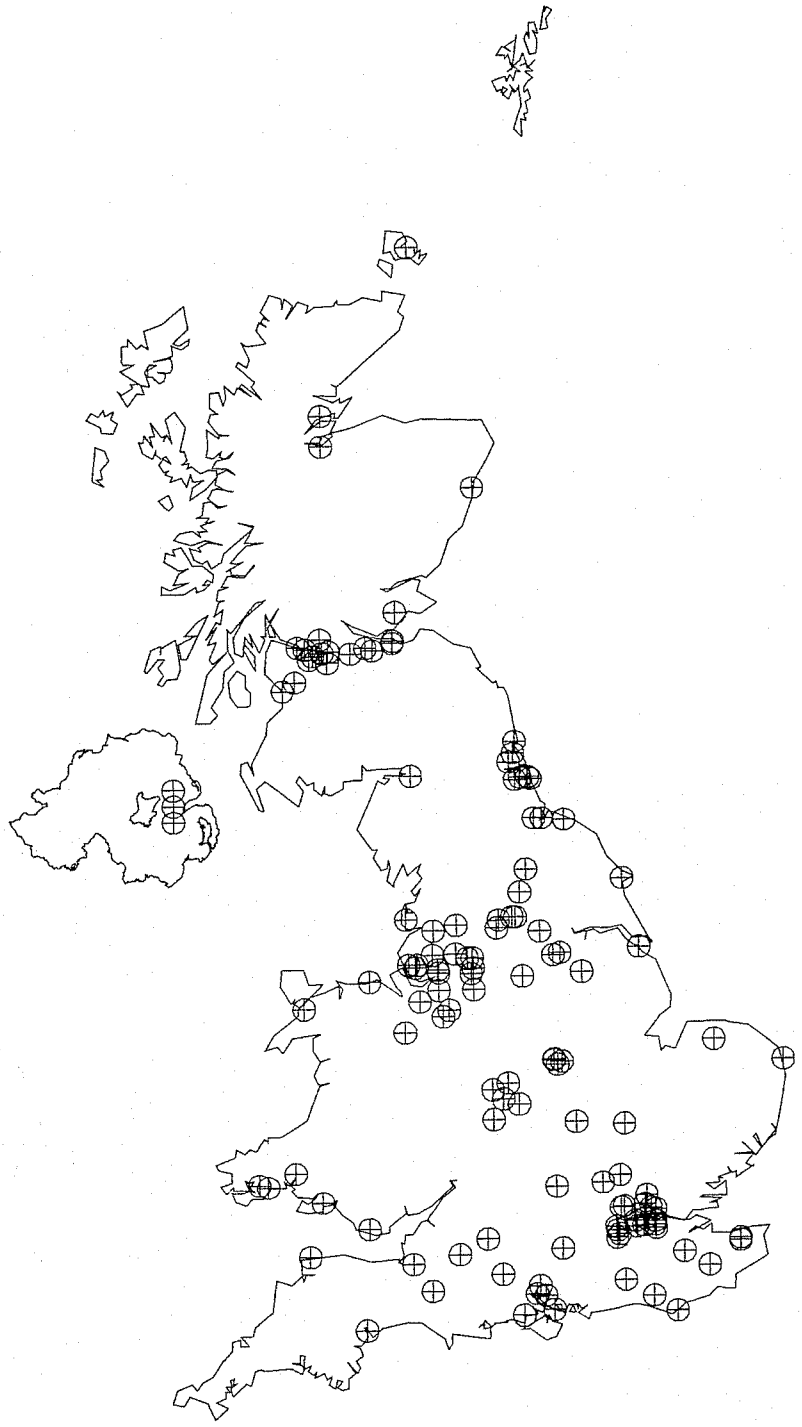
There is now statistical evidence that the epidemic is no longer increasing at the rate seen previously and that it may have reached or be reaching a peak. This finding cannot be interpreted as definitive evidence that the epidemic has reached its peak and is now in decline. This is because we may be seeing a slowing down in the underlying rate of increase, or because there may be a second peak at a later date. If the epidemic has reached a peak this should become clearer with further data in the next year.

For the purposes of short-term predictions the model used is important. Over the past year a model that allows a departure from exponentially increasing incidence provided predictions closer to what has been observed than a model assuming continuing exponential increase. For the coming year this model estimates current incidence to be 3.2 cases per quarter (3.9 deaths) and predicts 13 deaths over the next 12 months (95% prediction interval 5-23).

Geographical distribution of variant CJD

Figure 9 shows the geographical distribution, by place of residence at onset, of 127 cases of vCJD in the UK for whom a residential address at onset is available. For one case the address at onset is known only at county level and for a further two cases residential address at onset is not known. Cases have been widely spread throughout the UK. Table 3 presents data on the geographical distribution, by county of residence at onset, of the cases who had died by 31st January 2003 (for whom information on place of residence at onset was available) along with the crude mortality rate per million population per annum of each standard region.

Figure 9 Geographical distribution of places of residence at onset of symptoms of vCJD (n=127*)



* in one case only county of residence was known and could not be plotted and in two cases address at onset was not known and could not be plotted.

Table 3 Deaths from definite and probable vCJD by region and county of onset: 1 May 1995 to 31st January 2003 (n=120†)

	No of cases	Total no (mortality rate/million/ annum)*
ENGLAND		
North		
Cleveland	2	
Cumbria	1	
Durham	1	10 (0.42)
Northumberland	2	
Tyne & Wear	4	
East Midlands		
Derbyshire	0	
Leicestershire	4	
Lincolnshire	1	6 (0.19)
Northamptonshire	1	
Nottinghamshire	0	
South East		
Bedfordshire	0	
Berkshire	0	
Buckinghamshire	0	
East Sussex	2	
Essex	0	
Greater London	13	32 (0.23)
Hampshire	5	
Hertfordshire	2	
Isle of Wight	0	
Kent	4	
Oxfordshire	1	
Surrey	4	
West Sussex	1	
North West		
Cheshire	6	
Greater Manchester	5	16 (0.32)
Lancashire	2	
Merseyside	3	
Yorkshire & Humberside		
Humberside	2	
NorthYorkshire	2	
South Yorkshire	3	12 (0.31)
West Yorkshire	5	
East Anglia		
Cambridgeshire	1	
Norfolk	2	3 (0.18)
Suffolk	0	
South West		
Avon	0	
Cornwall	1	
Devon	2	
Dorset	0	7 (0.19)
Gloucestershire	0	
Somerset	2	
Wiltshire	2	
West Midlands		
Hereford & Worcs.	0	
Shropshire	1	
Staffordshire	0	5 (0.12)
Warwickshire	1	
West Mids (Met)	3	
TOTAL FOR ENGLAND		**91 (0.24)**
WALES		
Clwyd	1	
Dyfed	3	
Gwent	0	
Gwynedd	1	
Mid Glamorgan	0	
Powys	0	
South Glamorgan	1	
West Glamorgan	1	
TOTAL FOR WALES		**7 (0.31)**
NORTHERN IRELAND	2	**2 (0.16)**
SCOTLAND		
Borders	0	
Central	0	
Dumfries & Galloway	0	
Fife	1	
Grampian	1	
Highland	2	
Lothian	4	
Strathclyde	11	
Tayside	0	
Islands (Shetland)	0	
Islands (Orkney)	1	
Islands (Western Isles)	0	
TOTAL FOR SCOTLAND		**20 (0.50)**

* based on 1994 population by region (as published in ONS Regional Trends, 1996 edition) over the 7¾-year period of the study.

† does not include 8 cases still alive at 31st January 2003 plus 2 cases where address at onset was not known.

Table 4 shows cumulative regional rates of vCJD based on cases' place of residence in 1991, rather than at onset, and the population aged 10 years and above resident at that time. We originally performed an analysis of the first 51 cases, distinguishing two areas. The "North" comprised four standard regions: Scotland, North, Yorkshire and Humberside, North West. The "South" comprised the remaining 6 regions: Wales, West Midlands, East Midlands, East Anglia, South West, South East.

Age- and sex- standardised "incidence" ratios (SIRs) based on cases' place of residence in 1991 are shown in Figure 10 for the 11 standard regions of the UK.

Table 4 Distribution of 128 vCJD cases by standard region of residence on 1st January 1991

Standard region (in order of latitude of the centre of the region)	Population aged 10 years and above at the 1991 census	Number (cumulative incidence/million) of vCJD cases by place of residence in 1991
Scotland	4,363,684	17 (3.90)
North	2,635,785	10 (3.79)
Yorkshire & Humberside	4,202,051	12 (2.86)
North-West	5,396,333	19 (3.52)
East Midlands	3,444,391	9 (2.61)
West Midlands	4,464,592	8 (1.79)
East Anglia	1,775,687	3 (1.69)
Wales	2,466,669	5 (2.03)
South-East	15,010,650	34 (2.27)
South-West	4,055,268	8 (1.97)
Northern Ireland	1,320,430	3 (2.27)
Total	49,135,540	128 (2.61)

Figure 10 Standardised incidence ratios (SIRs) up to 31st January 2003 of vCJD by standard region on 1st January 1991

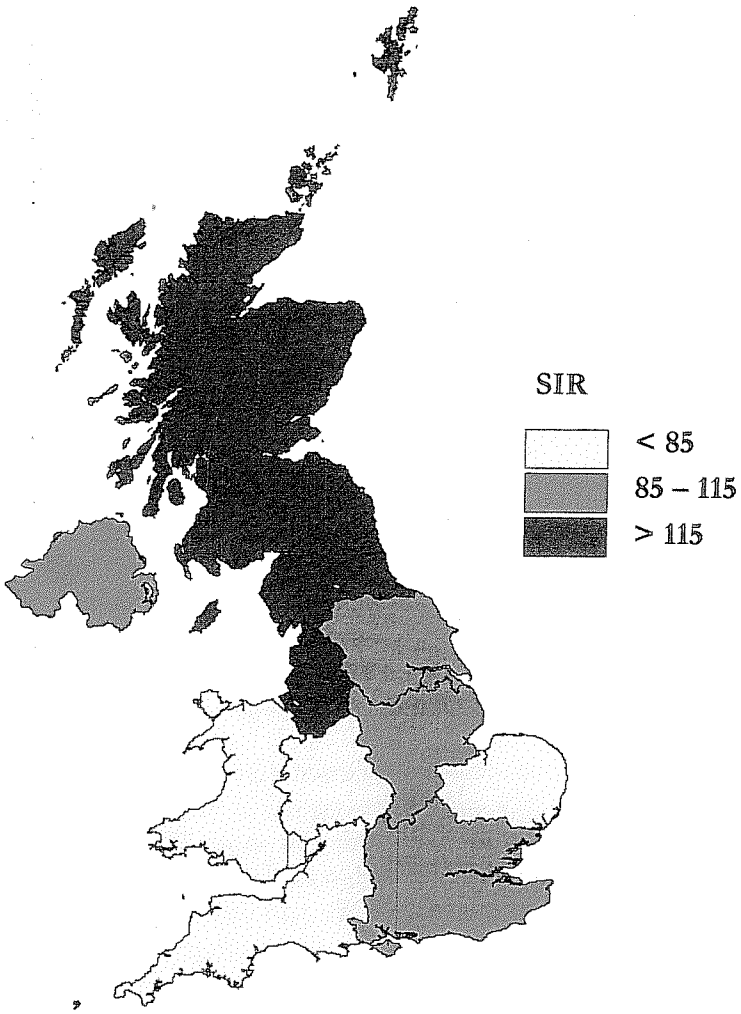


Table 5 shows the distribution of cases between the "North" and the "South" according to place of residence in 1991, for those cases included in the initial analysis (51) and for all cases. The excess of cases previously identified in the "North" (rate ratio controlling for age and sex = 1.94; 95% c.i. 1.12, 3.36) has been largely maintained as further cases with, overall, a rate ratio controlling for age and sex of 1.65 (95% c.i. 1.16, 2.34), i.e. individuals living in the "North" in 1991 are about one and two third times more likely to have developed vCJD than individuals who were living in the "South" in 1991. The overall rate ratio is slightly less than that estimated last year (1.72), based on 110 cases.

Table 5 Comparison of cumulative incidence in the "North" of the UK (excluding Northern Ireland) with that in the "South"

Region	Population aged 10 years and above at the 1991 census	Number (rate/million) of vCJD cases by place of residence at 1st January 1991	
		First 51 cases	Total
"North" (North West, Yorks & Humbs, Northern, Scotland)	16.6 million	26 (1.57)	58 (3.49)
"South" (South West, South East, Wales, West Midlands, East Midlands, East Anglia)	31.2 million	25 (0.80)	67 (2.15)
Total (rate ratio[1])	47.8 million	51 (1.94)	125 (1.65)

Northern cases were slightly older at onset than southern cases (median of 27 years versus 24 years; p=0.2), a similar proportion were male (55% versus 56% of southern cases; p=0.7).

Geographically Associated Cases of variant CJD

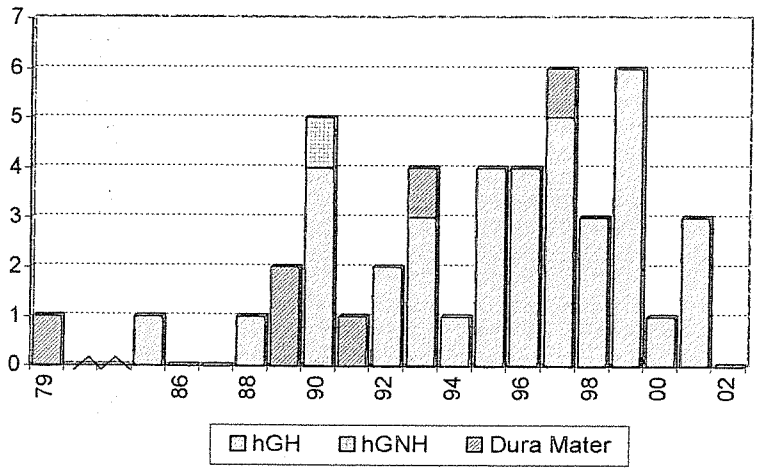
Geographically associated cases of variant CJD are defined by two or more cases of probable or definite vCJD with a geographical association, either through proximity of residence or through another link with the same location (occupational, educational or social / recreational). By the end of December 2002 a total of twelve investigations into geographically associated cases of vCJD had been opened in the UK. Those in eight localities were concluded and in four were ongoing (reports in the public domain are for Leicestershire (http://www.leics-ha.org.uk/publics/cjdrep.pdf), Southampton (contact michael.barker@sswh-ha.swest.nhs.uk), and NE England (http://193.129.245.226/publications/cdr/archive02/news/news3202.html). The Leicestershire cluster of five cases remains the only statistically significant cluster of cases of vCJD in the UK to date. None of the concluded investigations have revealed any suggestion of possible iatrogenic transmission nor has any evidence emerged in any of the areas apart from Leicestershire of bovine heads being split or brains removed by local butchers in their shops during the relevant time period.

2.3 Iatrogenic Creutzfeldt-Jakob disease

Since 1970, up to 31st December 2002, 45 cases of CJD attributable to iatrogenic exposure have been identified, 6 in individuals receiving dura mater implants, 38 in individuals who had received human-derived growth hormone (hGH) and one in a recipient of human gonadotrophin (hGN) (Figure 11).

[1] North versus South, adjusted for age and sex

Figure 11 Deaths from iatrogenic CJD, 1979-2002



The mean age at death of the hGH/hGN group was 29½ years (with a range of 20-45 years) and for the dura mater cases 43 years (range 27-59 years).

The first identified iatrogenic case was a dura mater recipient who died in 1979. The first hGH-related death occurred in 1985.

2.4 Transfusion Medicine Epidemiology Review

The Transfusion Medicine Epidemiology Review (TMER) is a collaborative project between the UK NCJDSU and UK Blood Services (UKBS). The main purpose is to investigate whether there is any evidence that CJD or vCJD may have been transmitted via the blood supply.

Methods

vCJD cases (definite and probables) are notified to the UKBS by NCJDSU; a search establishes whether any have acted as donors. Donation records are checked and all components traced through hospital records. Details of all identified recipients are forwarded to NCJDSU for subsequent checking.

In the reverse procedure, patients with vCJD reported to have received blood transfusions are identified by NCJDSU and notified to UKBS. Details of transfusions are traced through hospital records and relevant blood donors identified. The identity of donors is notified to NCJDSU for subsequent checking.

Results

Twenty-two vCJD cases were reported to have been blood donors. To date, only 13 have been traced at blood centres, and 11 of these had donated blood, with a resulting 57 blood components identified, of which 41 were actually issued to hospitals. It has been established that 33 components were transfused to named recipients (with 3 units discarded and 5 hospitals unable to trace component fate), none of whom have developed vCJD to date.

In the reverse study, 8 vCJD cases were reported to have received blood transfusions. Checks revealed that 2 were not transfused, 2 had transfusions which predated available records and 4 had records of transfusion which could be traced. These 4 individuals had received 117 components of blood, which have been traced to 111 named donors (one patient received 103 components). The donors of two components are not traceable and donor identity of 4 components are not yet available. None of the donors have been identified as vCJD cases.

Conclusion

No donors or recipients identified in the study through the tracing of donation and transfusion records appear in the NCJDSU register as cases. Further data on vCJD cases, to define time interval between blood donation and development of disease are being accumulated.

(Collaborators on this project: Dr P.E. Hewitt and Dr C.A. Llewelyn).

2.5 Study of Progressive Intellectual & Neurological Deterioration (PIND)

The aim of this project is to use the mechanism of the British Paediatric Surveillance Unit to identify all cases of progressive intellectual and neurological deterioration in children in the UK, particularly those with features suggestive of vCJD. All cases are discussed by an Expert Neurological Advisory Group of six paediatric neurologists which allocates the cases to a diagnostic category[1].

After almost 6 years surveillance, 1490 patients with suspected PIND have been reported. The Expert Group has discussed 1073 cases, of which 589 have a confirmed underlying cause other than vCJD, being categorised into 104 known neurodegenerative diseases. Among them were six cases of vCJD; four definite and two probable. Three were reported in 1999, one in 2000 and 2 in mid-2001. One girl was aged 12 at onset - the youngest case of vCJD identified to date.

(Collaborators: Dr C. Verity, Dr A. Nicoll, Ms G. Devereux).

[1] Verity CM, Nicoll A, Will RG, Devereux G, Stellitano L. Variant Creutzfeldt-Jakob disease in UK children: a national surveillance study. Lancet 2000; 356: 1224-1227.

Section

3

CASE-CONTROL STUDY

Since May 1990 the case-control study of CJD has been carried out in the UK to investigate potential risk factors. Relatives of patients with suspect CJD have been interviewed using a standard questionnaire, which includes a wide range of questions relating to putative risk factors for CJD including residential, occupational, dietary and medical histories. Up until 1997, for each suspect case, an age- and sex-matched patient at the same hospital was identified as a control. At the end of 1997 the design of the study changed. In addition to hospital controls for variant cases, and instead of hospital controls for sporadic cases, community controls were recruited, matched for sex and age, through general medical practices. Community controls are more suitable than hospital controls for the investigation of potential medical risk factors.

From the beginning of this study in 1998, difficulties were encountered arising from the relatively complex process of recruitment of general practice based controls. Of particular concern was the low response rate to the initial letter from the GP to the potential control (24% for variant CJD and 46% for sporadic CJD). With such a low response rate, the results from the study are very difficult to interpret because of the potential for response bias. However, major questions concerning the route by which variant CJD cases became infected and concerning the aetiology of sporadic CJD remained unanswered. Therefore, a revised strategy for control recruitment was devised with the hope of reducing the potential for selection bias. Hospital controls would continue to be recruited for variant cases and in addition two new groups of controls would be recruited for variant and sporadic cases of CJD. The first would be general population controls, who would be recruited using the services of the National Centre for Social Research, which is the largest independent social research institute in Britain. The second new group of controls would be friend-nominated by relatives of cases. The study received a further three year funding from the Department of Health and the Scottish Executive Health Department from July 2002. Multi-Research Ethic Committee Approval of the study was obtained in October 2002, and the study has commenced. In the meantime data from the previous study are being collated. Once this is completed and data from the National Centre for Social Research are available, the data will be analysed and published.

Section

4

LABORATORY ACTIVITIES

Laboratory investigations are part of the internationally-agreed diagnostic criteria for CJD, both during life (CSF protein analysis and PrP genetic studies) and post-mortem (neuropathology and protein studies). The NCJDSU has facilities to perform all of these investigations, which aid the timely and accurate diagnosis of all forms of CJD and are essential for surveillance purposes.

4.1 Neuropathology – Statement of Progress

The neuropathology laboratory in the NCJDSU continues to maintain a high workload in terms of diagnostic and research activities, including the work of the protein laboratory. The laboratory maintains close links with other neuropathology centres across the UK and overseas with scientific, medical, technical and student visitors over the past year for specialist training purposes. The laboratory has continued its major role in the National Retrospective Review of CJD and Related Disorders and in the retrospective study to detect abnormal PrP in anonymised specimens of appendix and tonsil tissue. The laboratory has developed the PET blot technique for the detection of protease-resistant PrP in paraffin sections; this has been of immense diagnostic value, particularly for cerebral biopsy specimens and cases where there is no frozen tissue available for Western blot analysis. Since 2001 the autopsy rates for sporadic and variant CJD have declined, in keeping with national trends which have been markedly influenced by the outcome of the Alder Hey inquiry. This has influenced the number of cases examined in 2002; the figures for variant CJD are also reduced as a result of the reduced number of deaths from variant CJD in 2002. The NCJDSU laboratory has taken part in the national audit of retained organs following autopsy and we were inspected by Audit Scotland for this purpose in December 2001. The complete report has indicated that the NCJDSU was compliant with the standards of specimen identification and traceability that were required. As before, the laboratory continues to act as a source of information to a wide range of professionals involved in health and safety issues relating to CJD. We are most grateful to all neuropathologists, general pathologists and their technical, secretarial and autopsy room staff for their continuing support of the NCJDSU. We are also grateful to the relatives of patients with CJD for allowing us to study this group of devastating disorders.

4.2 Surveillance and workload during 2002

A detailed breakdown of laboratory activities is summarised in Table 6. These demonstrate that the total number of cases referred to the laboratory from the UK has declined slightly, as discussed above. Neuropathological referrals are made from

pathologists in the UK and overseas. These include cases where a preliminary histological diagnosis of CJD has been made, cases which have undergone autopsy but no histological examination has been undertaken in a patient with suspected CJD, and cases where a diagnosis of CJD is thought unlikely, but no specific histological diagnosis has been made. The latter are usually referred to help the exclusion of CJD from the differential diagnosis. Material from DH-funded research projects is also referred to the NCJDSU, particularly in the UK Haemophilia Study (Director: Professor Christine Lee, Royal Free Hospital, London). In contrast to previous years, the most frequent alternative diagnoses for sporadic CJD is cerebral ischaemia/infarction, closely followed by Alzheimer's disease and dementia with Lewy bodies. The neuropathological features of variant CJD cases have been reviewed (see publications list). This has indicated that the neuropathological phenotype of variant CJD has remained relatively constant over the past seven years, and no other cases with neuropathological features similar to variant CJD were identified during 2002. The laboratory has liaised with pathologists overseas to review cases of variant CJD identified in Canada and Hong Kong. The laboratory is a major contributor to the World Health Organisation TSE Diagnostics Working Group, and continues to act as an international reference centre for the diagnosis of CJD.

Table 6 Breakdown of Laboratory Activities 1st January 2001 – 31st December 2002

	CURRENT YEAR	PREVIOUS YEAR
REFERRED CASES (UK)		
Sporadic CJD	45	44
Familial CJD	1	0
Variant CJD	3	17
Iatrogenic CJD (growth hormone therapy)	0	0
Gerstmann-Straussler-Scheinker syndrome (GSS)	0	1
Fatal Familial Insomnia	0	0
No evidence of CJD (no alternative diagnosis)*	19	17
Alzheimer's disease	4	11
Dementia with Lewy Bodies	4	0
Other forms of brain disease†	6	10
Peripheral Organs (tonsil)	1	0
Research Project (non diagnostic)#	22	1
REFERRED CASES (EUROPEAN UNION)		
Sporadic CJD	5	9
Variant CJD	0	1
GSS	0	0
Other forms of brain disease	3	8
Research Project	0	1
REFERRED CASES (REST OF WORLD)		
Sporadic CJD	3	4
Variant CJD	2	1
Other forms of brain disease	0	6
TOTAL NUMBER OF CASES	**118**	**131**

* Cases with no specific histological or biochemical evidence of CJD, in whom no specific alternative diagnosis has been made. These cases are usually submitted for the exclusion of CJD in the differential diagnosis, and the diagnosis given back to the referring pathologist is the diagnosis submitted at the time of referral. Further histological investigations leading to an alternative diagnosis are the responsibility of the referring pathologist.

† Other forms of brain disease: cerebral infarction/ischaemia (5), Guillain-Barre syndrome (1).

\# Material referred from DH-funded research projects primarily for the exclusion of variant CJD, including tissue samples (brain samples and lymphoid tissues) collected as part of the UK Haemophilia Study.

4.3 Protein Laboratory

Prion protein isotyping is carried out as a routine diagnostic test on all suspected cases of CJD where fresh brain tissue is received by the NCJDSU. Small quantities of cerebral cortex are homogenized, treated with proteases and the size and abundance of the three PrP^{res} glycoforms determined by Western blot analysis. The prion protein isotype is classified as type 1 if the nonglycosylated form has a molecular weight of ~21kDa or type 2 if the nonglycosylated form has a molecular weight of ~19kDa. The suffix B is used to denote a PrP^{res} isotype where the diglycosylated band predominates. The remaining type 2 cases where the diglycosylated band does not predominate are termed type 2A. The type 2B isotype has previously found to be characteristic of variant CJD. A total of 39 UK cases with frozen tissue were received and the results of the analysis were as follows:

Table 7 Breakdown of UK cases analysed in 2002

Diagnosis	Type	PrP^{res} +ve CNS
CJD (n=27)	Sporadic	24/24
	Variant	2/2
	Familial (E200K)	1/1
Alternative final diagnosis or not determined (n=12)		0/12*

* includes one brain and one tonsil biopsy

Table 8 Isotype/genotype breakdown of UK CJD cases analysed in 2002

Diagnosis	129	Type 1	Type 2A	Type 2B	Total
Sporadic CJD†	M/M	15	2	0	17
	M/V	1	2*	0	3
	V/V	0	3	0	3
	Total	16	7	0	23†
Variant CJD	M/M	0	0	2	2
	M/V	0	0	0	0
	V/V	0	0	0	0
	Total	0	0	2	2

* includes one result from a brain biopsy
†Genetic analysis of *PRNP* codon 129 was unavailable in one sporadic CJD case.

Three requests for Western blot analysis were also received from non-UK referrals (EU 2, rest of the world 1). Two were cases of sCJD (MM1) and the other was a case of familial CJD (D178N MV1).

4.4 Brain banking activities

The bank of fixed and frozen tissues in the surveillance unit was used extensively in 2002 for diagnostic and collaborative research purposes with colleagues in the UK and overseas. A brain bank manager was appointed in 2002, who has primary responsibility for this unique resource.

4.5 Molecular Genetics

Familial CJD

Fifty-three cases of familial CJD (excluding cases of GSS) have been identified since 1970 by the NCJDSU (these data are incomplete as formal investigation of familial CJD in the UK is undertaken by the National Prion Clinic in London). Of the 53 cases, 48 were resident in England and 5 were resident in Wales. Nine cases are still alive. Twenty-eight of the cases had insertions in the coding region of the PrP gene, 12 carried the mutation at codon 200 (Glu-Lys), 2 at codon 178 (Asp-Asn, both with methionine at codon 129, ie FFI), one at codon 117 (Ala-Val) and one at codon 210 (Val-Ile). Nine were identified as familial on the basis of relatives known to have had CJD. The mean age at death was 55 years (range 31-77 years).

Codon 129 distribution in sporadic CJD

The distribution of codon 129 genotypes in sporadic CJD has been analysed since the inception of the Unit in 1990. The overall distribution of codon 129 genotypes in sporadic CJD (68% MM, 15% MV, 16% VV) (see Table 9) is consistent with findings from other European countries. There is no evidence ($p > 0.1$) of a change in the codon 129 distribution in sporadic CJD between the periods 1990-1995 and 1996-2002.

Table 9 Codon 129 genotypes of cases of sporadic CJD in the UK, 1990-2002

Deaths from sporadic CJD	MM(%)	MV(%)	VV(%)
Deaths from 1 May 1990 – 31 December 1995	95 (75)	14 (11)	17 (13)
Deaths from 1 January 1996 – 31 December 2002	161 (65)	43 (17)	44 (18)
Total	256 (68)	57 (15)	61 (16)
Genotype distribution for the normal population Pooling data from five studies	(39)	(50)	(11)

Codon 129 distribution in vCJD

All cases for whom genetic data are available (113) were methionine homozygotes at codon 129 of the PrP gene.

The genetic laboratory undertakes genetic analysis on a national and international basis.

4.6 CSF 14-3-3 and other brain specific proteins

The laboratory received 236 CSF samples from January 2002-December 2002. Of these, 92 were from patients who were referred to the NCJDSU as suspect cases of CJD and 98 were from patients who did not have clinical features to merit formal referral as a suspect case of CJD, but in whom the diagnosis remained a possibility. These are termed "CSF only referrals". The remaining CSF samples were sent to the laboratory from hospitals outside the United Kingdom. The origin and numbers of these samples are given in Table 10.

Table 10 Number and origin of CSF samples received at the NCJDSU during January - December 2002

Source	Number of CSF samples (% of total)
CSF from suspect CJD referrals	92 (39%)
CSF only referrals	98 (42%)
Non-UK countries	46 (19%)
Total	236 (100%)

CSF 14-3-3 results in CSF samples received from CJD patient referrals

The CSF 14-3-3 results in patients referred to the NCJDSU with suspected CJD are shown in Table 11.

Table 11 CSF 14-3-3 results in patients referred to NCJDSU during January – December 2002.

Type of CJD	Diagnostic group (number of patients)	Positive 14-3-3/ Total number samples tested	Number of blood stained CSF samples
Sporadic	Definite (17)	17/18	0
	Probable (28)	28/28	0
	Possible (5)*	0/3	1
	Not CJD (22)	7/22	0
Variant	Definite (3)	2/3	0
	Probable (7)	5/7	0
	Possible (2)	1/2	0
	Not CJD (3)	0/3	0
Iatrogenic	Unclassified (2)	0/2	0
	Probable (1)	1/1	0
Unclassified	1	1/1	0

*One CSF sample received was insufficient for analysis.

One patient with definite sporadic CJD had a negative CSF 14-3-3. The patient was aged 72, had a disease duration of 4 months and had a typical EEG. No unusual features were seen on neuropathological examination and no blood was available for PRNP codon 129 analysis or genetic sequencing.

Of the 28 patients with probable sporadic CJD, 11 had EEG traces that were reviewed at the NCJDSU. Only 2 of these were considered to be typical for sporadic CJD. Therefore 26 of the 28 patients with probable sporadic CJD were classified as probable on the basis of a positive 14-3-3 result. Seven of the 28 patients with probable sporadic CJD have died without undergoing post-mortem investigation. Out of these 7 patients, 6 were classified as probable on the basis of a positive 14-3-3.

Of the 7 patients referred as suspect cases of CJD and with a positive 14-3-3 but diagnosed as not CJD, 3 had a paraneoplastic syndrome, one patient improved and one had status epilepticus when the CSF sample was taken. The final patient had a disease duration of 2 years, was heterozygous at codon 129 and had neither visual nor cerebellar signs and is currently not thought to have CJD but no alternative diagnosis is available as yet. [One patient who currently does not fulfil clinical criteria for probable CJD has neuropathology results outstanding but is thought likely to have CJD]

Of the 10 patients with either definite or probable variant CJD, 7 were positive for 14-3-3. This is a higher percentage than previous years and is thought to be due to a change in the antisera used. In 2002 a mouse monoclonal anti-14-3-3β was used rather than the rabbit polyclonal anti-14-3-3γ that had been used previously. Re-analysis of the vCJD samples from 2001 using the new mouse monoclonal anti-14-3-3β improved the sensitivity from 22% to 82% whilst having no significant effect on the specificity (92% vs 91% respectively).

The sensitivity, specificity, positive and negative predictive values for CSF 14-3-3 in the diagnosis of sporadic and variant CJD are given in Table 12.

Table 12 Sensitivity, specificity, positive and negative predictive values for CSF 14-3-3 for the diagnosis of sporadic and variant CJD calculated using the 14-3-3 results for definite CJD vs 'not CJD' cases (Jan-Dec 2002).

	Sporadic CJD Positive 14-3-3/ total numbers CSF investigated	Variant CJD Positive 14-3-3/ total numbers CSF investigated
Definite CJD	17/18	2/3
Probable CJD*	28/28	5/7
Not CJD	7/22	0/3
Sensitivity	94%	67%
Specificity	68%	100%
Positive Predictive value	71%	100%
Negative Predictive value	94%	75%

* The case definition for probable sporadic CJD can include a positive 14-3-3 result so the 28/28 positive cases cannot be treated as an indication of high sensitivity.

CSF 14-3-3 in CSF only referrals

Ninety-eight CSF samples were received as CSF only referrals and constituted 42% of the total number of samples received. As one CSF sample was blood-stained only 97 were available for analysis. The CSF 14-3-3 results are given in Table 13.

Table 13 CSF 14-3-3 results in CSF only referrals

Positive 14-3-3/ total number samples	Number of blood stained CSF samples
14/97	1

The diagnoses of the 14 patients with positive 14-3-3 results are given in Table 14.

Table 14 Diagnoses in patients with positive 14-3-3 results in CSF only referrals

Diagnosis (number of patients)
Unspecified psychiatric disorder (2)
Improved (2)
Demyelination (1)
Hyponatraemia and seizures (1)
Neuropathological examination not consistent with CJD (1)
Neuropathologically proven encephalitis (1)
Lewy body disease (1)
Hydrocephalus (1)
Vascular disease (1)
Motor neurone disease (1)
Possible CNS inflammatory disorder (1)
Unspecific encephalopathy (1)

Section

5

NATIONAL CJD CARE TEAM

The national CJD Care Team is based within the National CJD Surveillance Unit and was formed in response to concerns regarding the care of CJD patients. An initial national care coordinator post was established in February 2000 and in September 2001 the National CJD Care Team was formed with the appointment of a second care coordinator, a neurologist (part-time) and a secretary. This staffing arrangement has remained in place throughout 2002.

The role of the National CJD Care Team is to provide advice on all forms of CJD to the patients, their family and professional carers, including advice on the clinical features, diagnostic procedures and prognosis. The National Care Co-ordinators are available to assist with co-ordination of care locally, by providing the necessary education and support to local health professionals involved in the care of CJD patients. They are available to visit patients and their families and will provide advice on specific management issues such as symptom control. A neurologist is also available by telephone to provide advice regarding medical aspects of CJD management as well as care co-ordination issues.

When a referral has been made to the NCJDSU of a suspect case of CJD, the co-ordinator makes contact with the family and arranges to meet them within two weeks. Referrals are also made to the Care Team from the National Prion Clinic at St Mary's Hospital and from Leah Davidson who co-ordinates the care of iatrogenic CJD cases. Once contact is made, the co-ordinator meets with the patient and family on a regular basis, depending on need, to provide support and to assist with co-ordination of local health and social care professionals. Support to the family is continued after the patient dies.

The CJD Care Team is in close liaison with the Department of Health and provides access to the CJD Care Fund which is a sum of money available to assist with the care of CJD patients, by meeting shortfalls in the cost of services which cannot be met by local health or social service authorities. The CJD Care Team is also responsible for management of the CJD Advice Network. This is a group of health and social services professionals who have had experience of working with CJD and are available to share their experience and advice with other professionals.

From the establishment of the first National Care Co-ordinator post until December 31st 2002, the co-ordinators have been in contact with, or provided access to care funds to, 51 variant cases, 36 sporadic cases, 9 familial cases and two iatrogenic cases. The Care Team is currently involved with 11 variant cases, 15 sporadic cases, 8 familial cases and 2 iatrogenic cases. The number of variant CJD cases has remained constant over the last two years, however increased referrals of sporadic, familial and iatrogenic patients have led to an increased workload for the Care team and to increased expenditure from the CJD Care Fund.

The National Care Co-ordinators undertook 194 patient visits and case conferences during 2002 compared to 144 in 2001 (Table 15). In addition 32 teaching sessions were provided to professionals involved in the provision of care to CJD patients.

Table 15 Visits and case conferences attended by care co-ordinators during 2002

Number of Visits/Case Conferences	Number of patients
1	7
2	12
3	2
4	5
5	1
6	2
8	4
9	2
10	2
11	1
12	2
15	1

Expenditure from the National CJD Care Fund has increased and to the end of December 2002 a total of £308,078 has been spent, comprising £243,476 in 2002 compared with £64,602 in 2001. A breakdown of expenditure during 2002 is shown in Table 16.

In the latter half of 2002 a mail questionnaire was sent to 45 relatives of patients with CJD who had received input from the National CJD Care Team as part of ongoing audit of the team's activity. This demonstrated that over 70% of respondents were satisfied with the care provided to their family member with no complaints of dissatisfaction with care.

Table 16 Care Fund Spend During 2002

Description	Amount
Accommodation	7,100.69
Adaptations	28,673.08
Alternative Therapy	3,051.74
Car Hire	67,193.97
Childcare	2,100.04
Counselling	390.00
Equipment	20,033.82
Nursing	93,572.72
Social Care	4,073.26
Respite	14,128.43
Physiotherapy	1,970.36
Transport	1,187.98
TOTAL	**£243,476.09**

Section

6

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